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REPORT

The first biennial international workshop for Young Maxillofacial Prosthetic Educators (yMPE)

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In Tokyo, a city that holds a tremendous amount of fascination, a reputation for uniqueness, and a city of modern boldness merged with traditions, took place the first biennial Young Maxillofacial Prosthodontics Educators workshop. It was held March 5-8, 2019 at the Tokyo Medical and Dental University (TMDU) (Fig. 1) and was organized by the Department of Maxillofacial Prosthetics of TMDU. The workshop was supported by an education grant funded by the Education and Research Foundation of the International College of Prosthodontists (ICP) and sponsored by the International Journal of Maxillofacial Prosthetics (iJMP).

Objectives

-Develop and improve the teaching and presentation skills of young maxillofacial prosthetic educators through intensive lectures and presentations.

-Develop and improve the clinical supervision for young educators through clinical observation and discussion of various maxillofacial defect cases and propose effective prosthetic treatment for these cases.

-Develop and improve the research methodology for young maxillofacial prosthetic educators through reviewing various maxillofacial prosthetic articles.

-Introduce up to date digital technologies used in the education and research for maxillofacial prosthetics and discuss the benefits that can be used for teaching purposes.

Instructors

Four instructors from the Department of Maxillofacial Prosthetics of TMDU were participated to perform the activities of the workshop. Dr. Mahmoud Elbashti, the founder and the chair of yMPE workshop. Dr. Yuka Sumita, Chair of the Clinic for Maxillofacial Prosthetics. Dr. Mariko Hattori and Dr. Takafumi Otomaru, assistant professors at the Department of Maxillofacial Prosthetics. In addition, four invited instructors were invited to cover some lectures and hands-on workshops within the program activities. Prof. Takayuki Arai, a professor and the chair of the Department of Electrical and Electronics Engineering, Sophia University. Prof. Tomoki Itamiya, a professor at the Department of Media Informatics, Faculty of Engineering, Aichi University of Technology. Dr. Christine Wallace, an associate professor and clinical coordinator of the Doctor of Clinical Dentistry (Prosthodontics) program at the University of Sydney, Australia. Dr. Yamen Saraiji, an assistant professor at the Graduate School of Media Design of Keio University.

Participants

This workshop program was limited to 12 young maxillofacial prosthetic educators worldwide with 60% participation selection given for educators from developing countries. Candidates were early career academic staff attached to an educational institution that provides maxillofacial prosthetic education

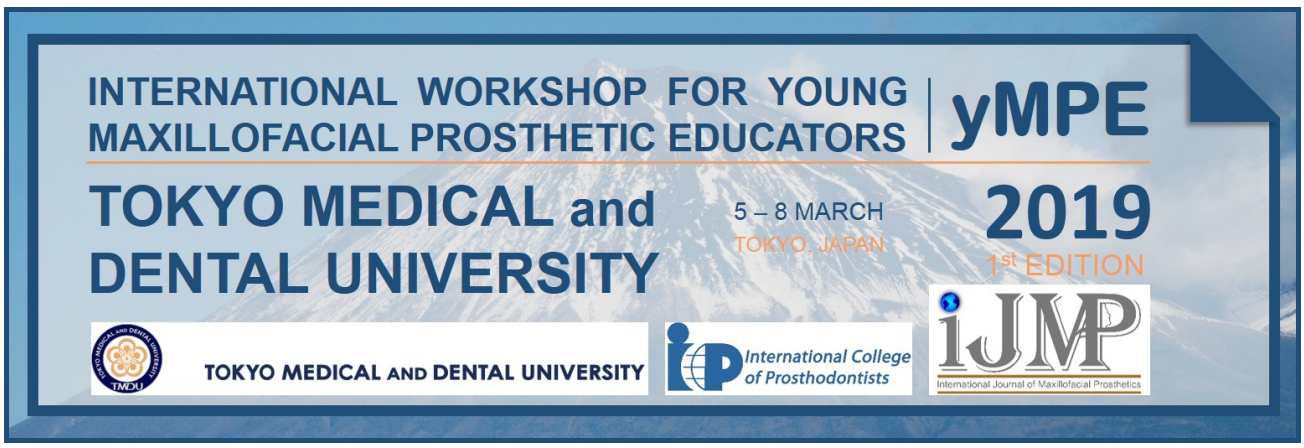

Fig 1. The first biennial international workshop for Young Maxillofacial Prosthetic Educators (yMPE).

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courses and clinical services for maxillofacial defect patients. Each candidate submitted an application form, a curriculum vitae (CV) and a letter of recommendation from his/her department head or school dean. A high level of English proficiency, in reading, listening, speaking and writing contexts, was also required. Following is the list of educators' institutions and countries;

1- Almansura University, Egypt.
2- Bordeaux University, France.
3- University of Berlin, Germany.
4- Universiti Teknologi MARA, Malaysia.
5- University of Indonesia, Indonesia.
6- Kyushu University, Japan.
7- International Medical University, Malaysia.
8- National Taiwan University, Taiwan.
9- University of the Western Cape, South Africa.
10- University of Concepcion, Chile.
11- University of Toronto, Canada.
12- University of Sydney, Australia.

The following expenses were supported by the workshop;

-Transportation to and from airport.
-5 nights accommodation.
-Local transportation.
-Lunch meals and coffee breaks during workshop.

Workshop Program

In the first day morning session, a brief introduction about the workshop was presented and three lectures were given for the educators followed by a 10-minute discussion for each lecture. These lectures focused more on educational aspects (Figs 2, 3).

Fig 2. A brief introduction about the workshop.

In the afternoon session, the clinical observation was performed at the Clinic for Maxillofacial Prosthetics of the Dental Hospital, TMDU. Educators were divided into 3 groups. Each group was introduced to the clinic facilities and observed various maxillofacial defect cases and their prosthetic rehabilitation (Fig 4). Those cases include Maxillectomy, Mandibulectomy, Glossectomy, cleft lip and palate cases, facial defect cases. The medical and dental history for those cases were reviewed and the prosthetic treatment for each case was discussed with educators. Each group with its clinical instructor was asked to conceder some interesting patient cases from the total patients that they have observed. The chosen cases were discussed in more detail regarding medical and dental history, examination, diagnosis, and treatment options. After the final decision, each group agreed to choose one patient case and write a case report article and then submit it to the International Journal of Maxillofacial Prosthetics for publication. At the end of the day, all educators went to a unique café where their faces were printed on drinkable coffee!

Fig 3. Educators attending lectures in the morning session.

Fig 4. Introduce educators to the clinic facilities and observation.

On the second day, clinical observation continued in the morning session at the Clinic for Maxillofacial Prosthetics of the Dental Hospital - TMDU. Educators continued to observe various maxillofacial defect cases and their prosthetic rehabilitation (Fig 5).

In the afternoon session, another three lectures were given for the educators followed by a 10-minute discussion for each lecture. Those lectures covered

various maxillofacial prosthetic topics and focused more on the educational aspects of maxillofacial prosthetics (Fig 6). At the end of the day, an optional activity has performed where all educators went to visit the multi-floor showcase room of GC Corporation. They spent about an hour observing the latest dental products, innovative dental equipment, and unique dental units. Educators got a brief explanation about the history of the company and the development of its products.

Fig 5. Clinical observation for maxillofacial defect cases.

Fig 6. A lecture in the afternoon session.

On the third day of the program, hands-on prosthodontic journals review has performed. Three international peer-reviewed prosthodontic journals namely (*Journal of Prosthetic Dentistry*, *Journal of Prosthodontics*, and *the International Journal of Prosthodontics)* that have impact factors were reviewed regarding the maxillofacial prosthetic publications. The aim of this workshop session was to investigate the trends of recently published maxillofacial prosthetic literature in the following terms;

- Productivity of published articles.
- Article classification.
- Authorship characteristics.
- Collaboration.
- Funding.
- Geographic distribution.

Educators were divided into three working teams. Each team worked on one of those journals and review the maxillofacial prosthetic articles in the last five years (2014 - 2018). First, the scope of Maxillofacial Prosthetics was discussed and agreed between the educators (Fig 7). Published articles from January 2014 to December 2018 were hand-searched issue by issue, classified to review studies, research studies, clinical reports, and techniques and then reviewed according to the above-mentioned terms. Descriptive statistical analysis was used to analyze the data. In the end, each team presented their finding in a structured oral presentation using PowerPoint presentations (Fig 8). Each presentation was evaluated and comments were given for each presentation team. In addition, all educators have agreed to collaborate together to write a literature review article using the results of their work and then submit it to the *International Journal of Maxillofacial Prosthetics* for publication.

Fig 7. Discussion on the scope of maxillofacial prosthetics.

Fig 8. Educators working into groups reviewing prosthodontic journals.

In the last day morning session, a lecture and hands-on various acoustic production and evaluation were performed (Fig 9). Various physical models for sound production including vowels and consonants were used (Fig 10). Educators had the practical experience to produce these sounds and use these techniques for teaching their students.

In the afternoon session, a lecture and hands-on augmented and mixed reality using holographic computing for maxillofacial defects were performed (Figs 11, 12). Educators had practical experience in augmented and mixed reality and use those techniques for teaching their students in the future. The overall workshop activates were reviewed and discussed with the educators, the future collaboration and directions were also discussed. A closing remarks speech was given by the author highlighting the success of the activities and the great contribution of the educators and instructors (Fig 13).

Fig 9. A lecture on acoustic production and evaluation.

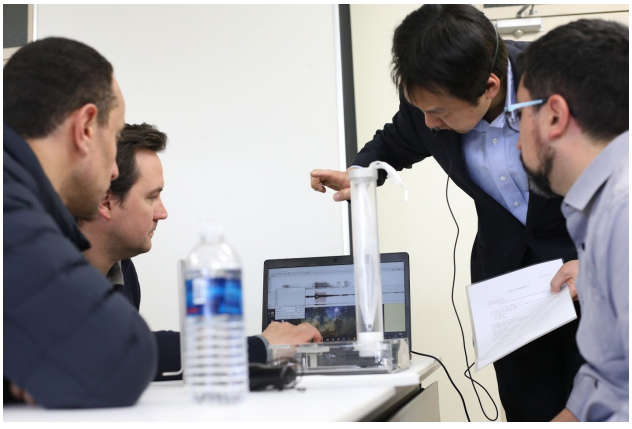

Fig 10. Educators having the practical experience to produce sounds.

Outcomes

The teaching and presentation skills of young maxillofacial prosthetic educators were improved through intensive lectures and presentations that were given by highly experienced instructors in the field of maxillofacial prosthetics. Educators showed interest to establish their specialized maxillofacial prosthetic program at their institutions, this workshop gave them the opportunity to learn how to establish and develop a program from scratch. Dr. Wallace has given her 20-year experience regarding the establishment and develop a maxillofacial prosthetic program within the university and hospital-based environment..

The clinical supervision skills for young educators were developed through clinical observation and discussion of various maxillofacial defect cases. Educators were able to propose effective prosthetic treatments for those kinds of cases. Out of all cases that they have observed, three cases were chosen to be written as case report articles. Through these cases, educators discussed and presented effective prosthetic treatments. Also, educators learned various clinical techniques related to radiotherapy appliances that need to be prepared by the maxillofacial prosthodontists which usually are not common in their institutions.

The skills of review maxillofacial prosthetic literature for young educators were improved through reviewing various leading prosthodontics journals. Educators were able to observe the trends of recently published maxillofacial prosthetic literature in terms of published articles productivity, article classification, authorship characteristics, collaboration, funding, and geographic distribution. Educators were able to work within split teams to review prosthodontic journals and extract all related data and analyze them using descriptive statistical analysis. In the end, each team presented their finding in a structured oral presentation using Power Point presentations. In addition, all educators

Fig 11. A lecture on augmented and mixed reality using holographic computing for maxillofacial defects.

Fig 12. Educators having hands on augmented and mixed reality using holographic computing for maxillofacial defects.

have agreed to collaborate together to write a literature review article using the results of their work and then submit it to the *International Journal of Maxillofacial Prosthetics* for publication.

Through the hands-on digital technology workshops on the fourth day, educators were introduced to up to date digital technologies that are used in the education, research activities, and clinical applications for maxillofacial prosthetics (Vid 1). Besides the physical speech production models, educators have used digital acoustic analysis techniques to evaluate the produced speech. They were able to discuss many aspects of those techniques with the instructors and the possibility to apply them in their institutions for clinical applications and teaching purposes. The digitized 3D data resources for those physical models were also given to all educators. So educators can simply download them from the given link and then print them using a 3D printer and use them to teach their students. The other aspect of digital technology application is that the educators were able to apply a workflow approach to augmented and mixed reality within 5 minutes. They used real DICOM data of maxillectomy and mandibulectomy patients as imaging resources. They also learned modeling techniques to produce STL models from DICOM data and then convert them to OBJ data. In addition, they learned how to make AR contents using Unity/ Vuforia and then visualized them by using interactive transparent smart glasses.

Fig 13. A group picture for the educators and instructors at the first yMPE workshop.

Vid 1. This video shows the digital technology activities and feedback from the instructors and educators at the first yMPE workshop.